

Fig. 1

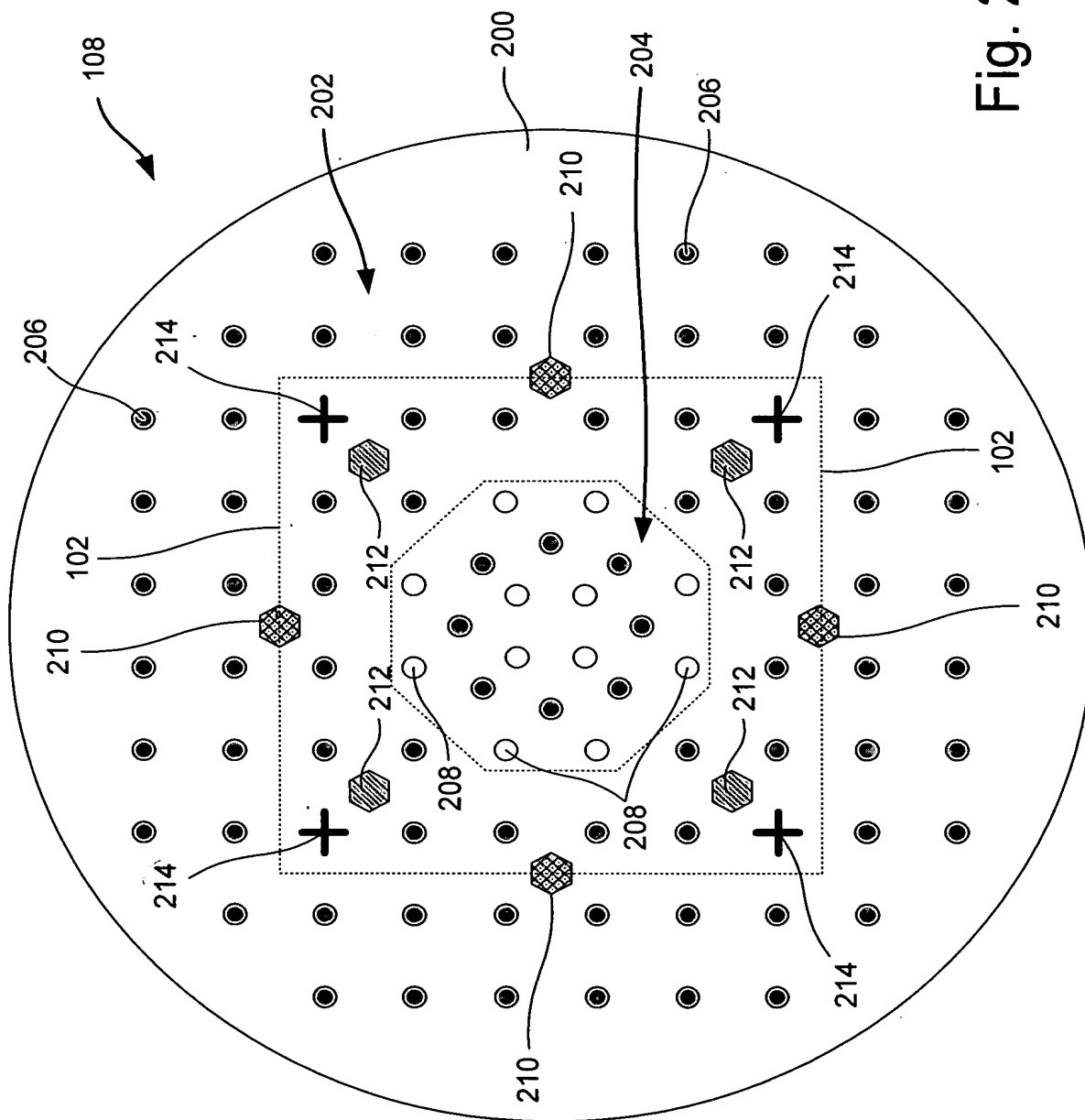


Fig. 2

The diagram illustrates a multi-beam phased array system (302) and its associated processing components. The system includes a Multi-Beam Phased Array (302) with multiple antenna elements (306-1, 306-2, 306-3, ..., 306-N). Each element is connected to a common feed line (308) and a control line (310). A Calibration Beam Switch (314) is connected to the feed line (308) and the control line (310). A Probe Switch (312) is connected to the feed line (308) and the control line (310). The system also includes a Coherent Receiver Decoder Cross-Correlator (324) which receives signals from the antenna elements (306-1, 306-2, 306-3, ..., 306-N) and outputs signals (E₁, E₂, ..., E_n, ..., E_N). The Coherent Receiver Decoder Cross-Correlator (324) is connected to a Coherent Source (316) and a Tx/Rx Switch (318). The Tx/Rx Switch (318) is connected to a Switchable Converters - Down-Converter for Tx Array Up-Converter for Rx Array (320). The Switchable Converters (320) are connected to the Coherent Source (316) and the Tx/Rx Switch (318). The Coherent Source (316) provides a reference signal to the Coherent Receiver Decoder Cross-Correlator (324). The Tx/Rx Switch (318) routes signals between the Coherent Source (316) and the Switchable Converters (320). The Switchable Converters (320) convert signals between the Coherent Source (316) and the Tx/Rx Switch (318). The Coherent Receiver Decoder Cross-Correlator (324) processes the received signals and outputs the final signals (E₁, E₂, ..., E_n, ..., E_N).

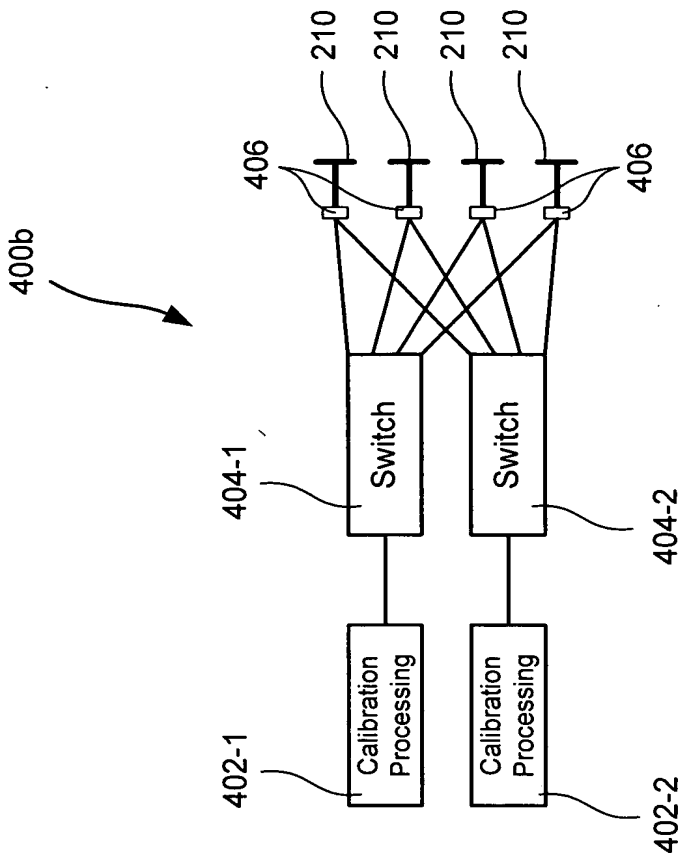


Fig. 4b

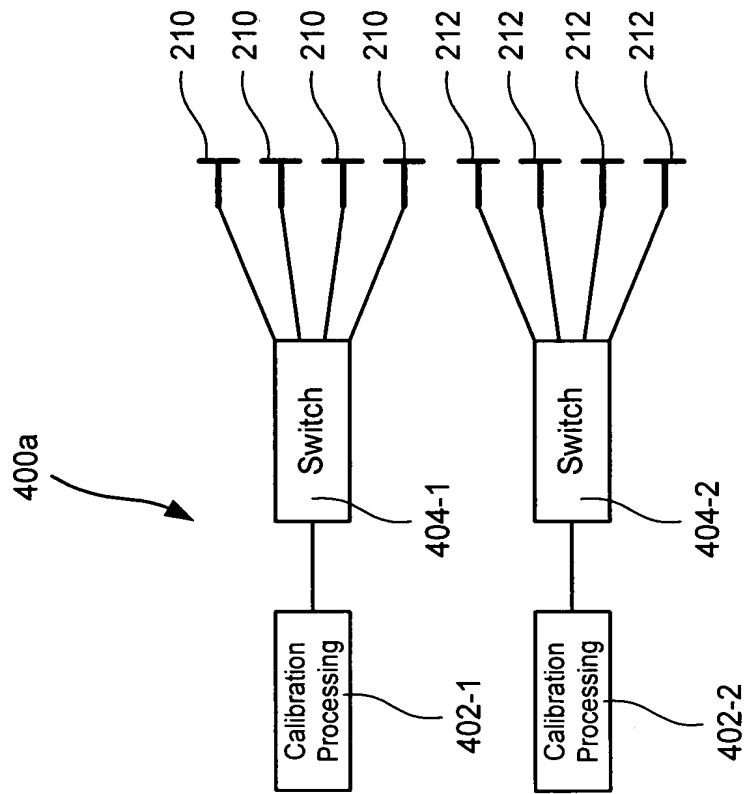


Fig. 4a